DOCUMENT RESUME

ED 235 433 CG 016 967

AUTHOR Karbowski, Joseph; And Others
TITLE The Additive Effects of Choice and Control.
PUB DATE Mar 83
NOTE 13p.; Paper presented at the Annual Meeting of the Southeastern Psychological Association (29th, Atlanta, GA, March 23-26, 1983).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS College Students; *Expectation; Higher Education; Individual Power; *Locus of Control; Memory; Noise (Sound); *Performance Factors
IDENTIFIERS *Choice Behavior

ABSTRACT

In separate research studies, students who were given a choice of learning materials or who had control over aversive noise, demonstrated higher motivation and better task performance. To investigate the additive effects of choice and control on perception of control, 80 male and female college students participated in a 2 (choice vs. no-choice) X 2 (control vs. no-control) research design using a paired-associate (PA) word choice task and a dice game. In the PA word choice task, subjects were shown a stimulus word and two possible response words. In the choice condition subjects either chose a response word, or were assigned the response word. All subjects received white noise during the decision trial; in the control condition the noise was discontinued after a choice was made. In the dice game, subjects rated their expectancy for winning prior to throwing the dice. After both events, all subjects were administered a PA cued-recall task and a perceived control questionnaire. Analysis of the results showed no additive effects of choice and control on expectancy measures in a gambling task and memory performance. The decision latencies in the PA task were responsible for the development of perceived control stemming from choice but not control. The contrasting results suggest the effects of choice and control may not be additive due to the unique characteristics of choice and control. (Author/BL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED235433

THE ADDITIVE EFFECTS OF CHOICE AND CONTROL

Joseph Karbowski
Florentius Chan
Lawrence C. Perlmuter

Virginia Polytechnic Institute and State University

CG 016967

Paper presented at the Annual Meeting of the Southeastern Psychological Association, Atlanta, GA, March 23-26, 1983.

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

X Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Joseph Karbowski

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Previous studies have shown that subjects demonstrated higher motivation and better task performance when they were given a choice on the learning materials (Monty & Perlmuter 1975). Similarly research has found that people who have control over an aversive noise, whether or not they exercise it, demonstrated better task performance than those who had no such control (Glass & Singer 1972b). In general the enhanced performance is attributed to the subject's perception of control due to choice or control. The present study was designed to investigate if there are additive effects of choice and control on perception of control.

METHOD

Subjects

The subjects were 80 male and female introductory psychology students from Virginia Polytechnic Institute and State University. They received an additional credit toward their course grade for research participation.

Apparatus

The stimuli consisted of words typed in elite capitals on Kodak Ektagraphic Write-On slides. These slides were projected with a Kodak 760H Carousel projector at a viewing distance of 1.8 m. The projector was programmed with two Hunter model 100C silenced decade interval timers so that slides were presented every 10 seconds. The decision times were measured by a Hunter Klockounter model 120 digital timer connected to an electronic voice key (Gerbrands Company, model 800) and a microphone.

The white noise was taped at 90 dB from a white noise generator (Lafayette Company, model 15011) and was presented on a Sanyo model 2535 tape recorder and a headphone.

Materials

Paired-associate choice task. The 48 words were taken from the first 55 words of a list generated by Locascio and Ley (1972) and were of relatively high meaningfulness. These words were assembled into 16 groups (two for practice and 14 for the experiment proper) of three items each, with one word in each group serving as the stimulus word and the remaining two words as the response words. Each five-letter word consisted of consonant/vowel/consonant.... Words were projected onto a screen with the stimulus word centered on the left of the screen and the two response words listed vertically on the right. Subjects were instructed to choose one response word to associate with the stimulus word and recite it quickly into the microphone. The dependent measure was the decision latencies of announcing the chosen response words.

Dice game. A Las Vegas miniature dice table was used. Subjects were given five poker chips and were asked to bet on the "field" of the dice table. The "field" indicated that dice throws of 3, 4, 9, 10, and 11 would win, dice throws of 2 and 12 would win double, while all other throws would lose. There was one trial in this game and subjects could bet one to five poker chips on that trial. Prior to placing the bet, subjects indicated their expectancy for success on a scale ranging from 0 (least confident) to 10 (most confident) which constituted the dependent measure.

Cued recall task. The 14 stimulus words in the paired-associate

choice task were presented in a random order with a space next to each stimulus word. Subjects were to recall the respective response words which they had chosen previously.

Perceived control questionnaires. These consisted of three separate seven-point scales ranging from 1 (least control) to 7 (most control), which allowed subjects to rate their perceived control on the exposure duration of words, the duration of the noise, and the whole experiment.

Procedure

In a 2 (choice vs. no-choice) X 2 (control vs. no-control) design, 80 male and female college students were randomly assigned to one of four groups with 20 subjects each and all subjects were tested individually. Fourteen paired-associate word sets were presented to all subjects, one at a time, by a projector for an interval of 10 seconds each. Each word set consisted of one stimulus word and two possible response words. In the choice condition subjects were allowed to select the response words they wanted to learn whereas in the no-choice condition, subjects were assigned the response word chosen by the previous choice subject. All subjects received a 90 dB white noise during the paired-associate decision trials through a set of headphones. When subjects announced their chosen or assigned response word, the noise was terminated for the rest of the trial in the control condition but not in the no-control condition. Upon completion of the PA choice task, subjects were presented with a dice game in which they rated their expectancy for winning prior to their throwing of the dice. A PA cued-recall task and a perceived control questionnaire were then administered. For the no-choice subjects the decision latencies actually refer to a response time, since they did not choose a response word but were assigned one.

RESULTS

A Choice (2) X Control (2) ANOVA was performed on decision latencies, expectancy measures, memory performance and self-reports of perceived control. It was found that subjects who had control over the duration of the noise reported greater perceived control over the duration of the noise than the subjects who did not have such control, F (1, 76) = 10.91, $p < .01$. However, no other significant main effects for groups was found.

To further assess the relationship between decision latencies and perceived control, a multiple regression analysis was performed. The decision times were used as the continuous predictor variable, choice and control as the categorical variables. The dependent measures were the expectancy of success on the dice game, memory performance and the self-report of perceived control.

There was a significant interaction between decision latencies and choice on the expectancy for success on the dice game, F (1, 76) = 4.82, $p < .05$. As the decision latencies increased, the choice subjects indicated a higher expectation for success on the dice game while the no-choice subjects indicated a lower expectation for success on the dice game (see Figure 1).

A significant interaction between choice and decision latencies on memory performance was also found, F (1, 76) = 4.00, $p < .05$. As the decision latencies increased, the choice subjects recalled approximately a constant number of words while the no-choice subjects recalled less words (see Figure 2).

Also a significant interaction of choice and decision latencies on the perception of control over the exposure durations of the words was

found, F (1, 76) = 5.32, $p < .01$. As the decision latencies increased, the choice subjects indicated greater perceived control over the exposure durations of the words, while the no-choice subjects indicated less perceived control (see Figure 3).

Finally, an interaction between choice and decision latencies on the mean perceived control in the experiment was found, F (1, 76) = 4.49, $p < .05$. As the decision latencies increased, the choice subjects reported greater perceived control in the experiment, whereas the no-choice subjects reported less perceived control (see Figure 4).

However, no significant interactions between control and decision latencies were found.

DISCUSSION

The contrasting results, that is there were significant interactions between choice and decision times but no significant interactions between control and decision times on the perception of control, suggest that the mechanisms mediating the development of perceived control stemming from choice is different from the mechanisms of perceived control stemming from control. That is, choice and control each has its own unique characteristics. As Harvey and Jellison (1974) found, in order for subjects to develop a perception of control through a choice, the outcome of the choice must be ambiguous and the alternatives close in attractiveness. Also the effects of choice are usually delayed rather than immediate. For example, a person buying a new car does not know if he made a good choice until he owns the car for awhile. On the other hand, the effects of control are immediate. For example a person flips a switch and the light immediately goes off. Thus, people are more immediately certain about the outcome of their control.

Since control is usually situationally specific and its outcome is immediate, the effects of perceived control stemming from control may also be specific. But since the outcome of choice relies on some ambiguity, the effects of perceived control stemming from choice are more likely to be generalized to other situations.

In summary, the results of this study show that the control subjects realize that they have control over the noise, but they did not generalize their control to other situations. While on the other hand the subjects who were allowed to choose their response words generalized their control to other situations. Therefore, the effects of choice and control may not be additive due to the different characteristics of choice and control.

References

Glass, D. C. & Singer, J. E. Behavioral aftereffects of unpredictable and uncontrollable events. American Scientist, 1972, 60, 457-465.

Harvey, J. & Jellison, J. Determinates of perceived choice, number of options, and perceived time in making a selection. Memory and Cognition, 1974, 2, 539-544

Locascio, D. & Ley, R. Scaled-rated meaningfulness of 319 CVCVC words and paralogs previously assessed for associative reaction time. Journal of Verbal Learning and Verbal Behavior, 1972, 11, 243-250.

Monty, R. A. & Perlmuter, L. C. Persistance of the effects of Choice on paired associate learning. Memory and Cognition, 1975, 3, 183-187.

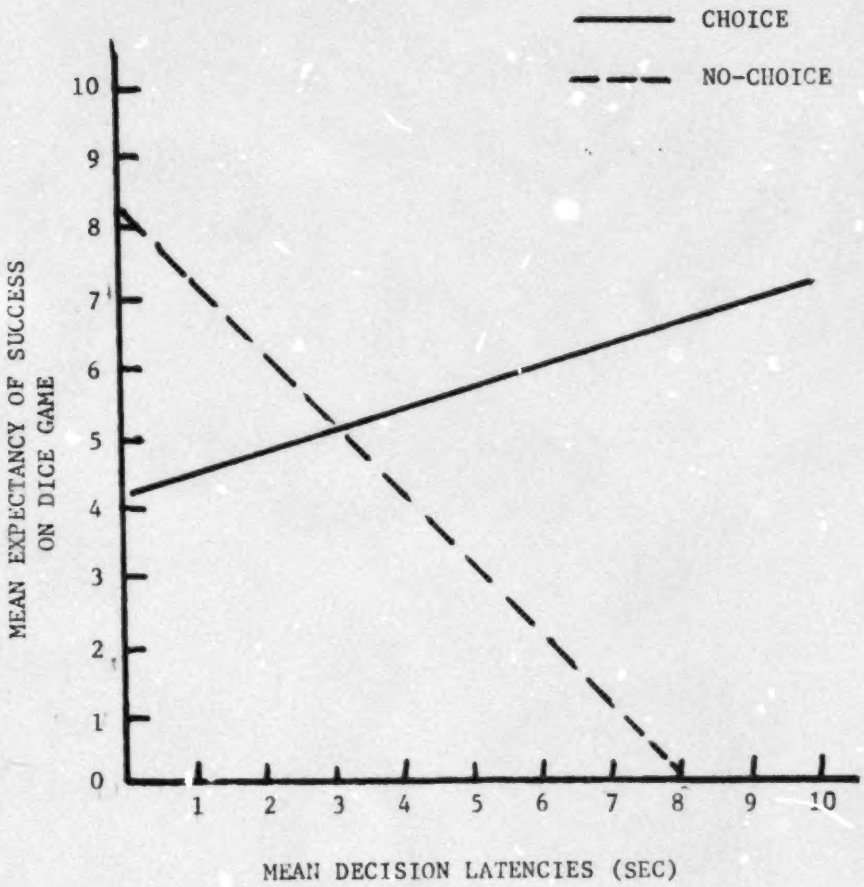

Figure 1. Relationship Between Mean Expectancy of Success on Dice Game and Mean Decision Latencies in Choice and No-Choice Conditions.

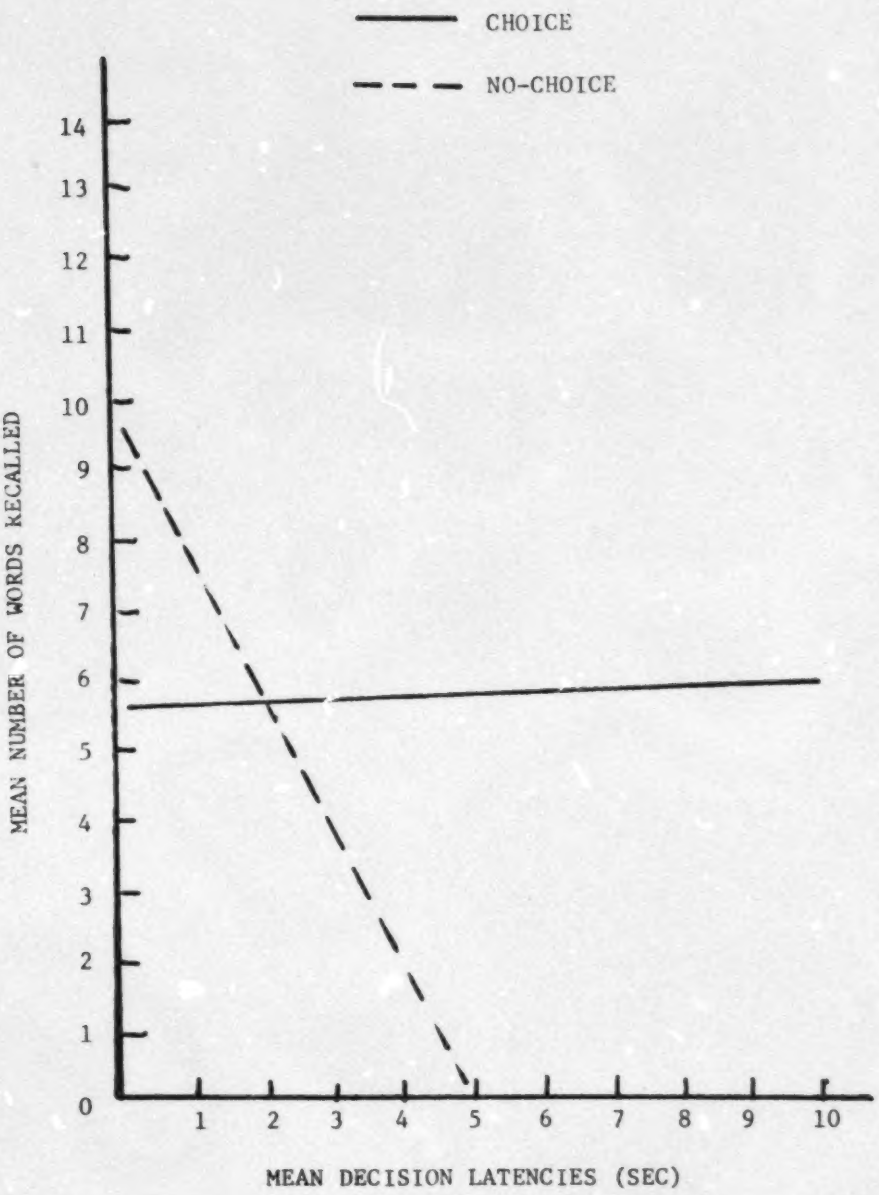

Figure 2. Relationship Between Mean Number of Words Recalled and Mean Decision Latencies in Choice and No-Choice Conditions.

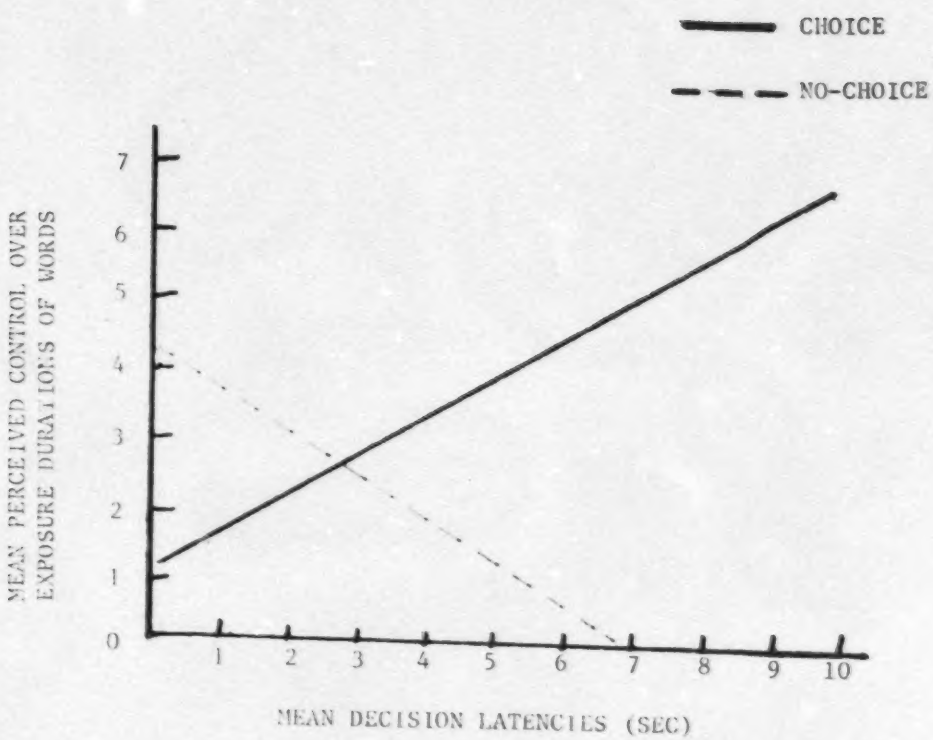

Figure 3. Relationship Between Mean Perceived Control Over Exposure Duration of Words and Mean Decision Latencies in Choice and No-Choice Conditions.

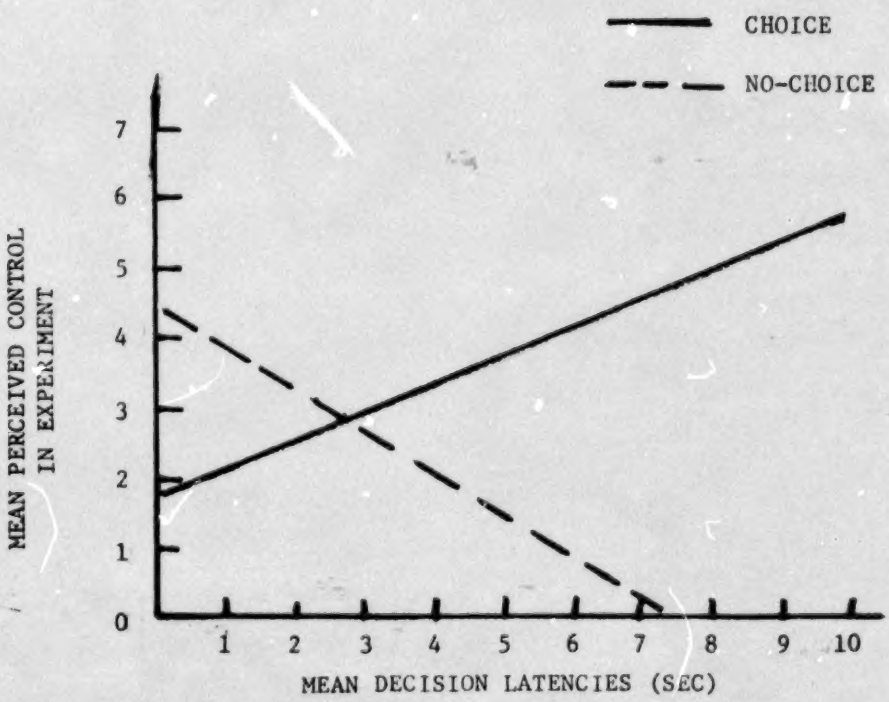

Figure 4. Relationship Between Mean Perceived Control in Experiment and Mean Decision Latencies in Choice and No-Choice Conditions.